

## RAPID AEROGEL PRODUCTION PROCESS

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### ABSTRACT OF THE DISCLOSURE

Methods of more rapidly producing aerogel products by means of a rapid solvent exchange of solvent inside wet gels with supercritical CO<sub>2</sub> by injecting supercritical, rather than liquid, CO<sub>2</sub> into an extractor that has been pre-heated and pre-pressurized to substantially supercritical conditions or above. Preferably, pressure waves are applied to the supercritical CO<sub>2</sub> to enhance the solvent exchange. The rapid solvent exchange process is followed by depressurization, optionally with a gas exchange. Preferably, pressure waves are used to speed up the depressurization. The process greatly reduces the time for forming aerogel products.